REMARKS

Claims 1-24, all the claims pending in the application, stand rejected on prior art grounds. Claims 1-6 stand rejected under 35 U.S.C. §101. Applicants respectfully traverse these rejections based on the following discussion.

I.   The 35 U.S.C. §101 Rejection

Claims 1-6 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Specifically, the Office Action provides that the subject claims "appear to be directed towards abstract ideas and do not produce a useful, concrete and tangible result". The Office Action further provides that "while the active method steps recited appear to provide a result that is useful and concrete…, there does not appear to be a tangible result produced. In particular, claim 1 does not recite "collecting said randomized dataset in a database. Furthermore, because of the "if" clause, there are embodiments of claim 1 in which an association rule would not be output."

The Applicants traverse these rejections because the randomized dataset and the output association rule are each new, useful and tangible results of the claimed method. However, in an effort to move this application towards allowance, the Applicants have amended the limitation of "collecting said randomized dataset in a database" into independent claim 1. As indicated in the Office Action, this limitation qualifies as a new, useful and tangible result. Since this limitation or a similar limitation is included in each of the previously presented independent claims (i.e., claims 7, 13 and 19), the Applicants submit that it does not raise any new issues that would

warrant an additional search. Therefore, the Applicants respectfully request that the amendment be entered and the 35 U.S.C. §101 rejection of claims 1-6 be withdrawn.

II.   The Prior Art Rejections

Claims 1-24 stand rejected under 35 U.S.C. §102(a) as being anticipated by Rizvi, et al. (Maintaining Data Privacy in Association Rule Mining," Proceedings of the 28th VLDB Conference, Hong Kong, China, August 2002, 12 pages), hereinafter referred to as Rizvi. Applicants respectfully traverse these rejections based on the following discussion.

Specifically, the Applicants submit that the cited prior art reference does not teach or suggest the following limitations of amended independent claim 1 or the similar features found in independent claims 7, 13 and 19: "randomizing an original dataset to create a randomized dataset, said randomizing comprising: randomly dropping true items from each transaction in said original dataset; randomly inserting false items into each transaction in said original dataset".

In rejecting claim 13, the Office Action provides that Rizvi discloses "creating randomized transactions from an original dataset (Rizvi; Section 2.3, paragraph 1, lines 1-3 – "distort the user data before it is subject to the mining process") by: -randomly dropping true items from each transaction in said original dataset (Rizvi; Section 3.1, paragraphs 1 and 2), and -randomly inserting false items into each transaction in said original datset (Rizvi; Section 3.1 paragraph s1 and 2); --creating a randomized dataset by collecting said randomized transactions (Rizvi; Section 3.1 paragraph 2, lines 4-7—All the customer tupes are distored in this fashion

and make up the databse supplied to the miner")". The Office Action applied the same rationale to claims 1, 7 and 19. The Applicants respectfully disagree.

Rizvi discloses one technique for maintaining data privacy in association rule mining. However, the technique used by Rizvi is different from that claimed. Specifically, the technique in Rizvi is based on a "probabilistic distortion" of an original dataset (i.e., a customer tuple) (see page 1, col. 2, last para.) and not on a randomization of the original dataset. Section 2.1 defines a customer tuple as a fixed length sequence of 1's and 0's. Each entry represents an item sold at a supermarket and a 1 or 0 indicates whether that customer bought that item. Section 3.1 discloses how this probabilistic distortion of the customer tuple is performed. The customer tuple itself is considered to be random (see the first sentence). Each element (e.g., an element X_i) in the tuple has a probability p of being kept the same and a probability of $p-1$ of being flipped to the opposite value (i.e., from a 0 to a 1 or a 1 to a zero). Thus, for each given element in a tuple (e.g., a value one indicating the purchase of a specific item), there is a probability p that the information is correct (i.e., the purchase was made) and a probability of $p-1$ that the purchase was not made. A privacy value is then attainable based on the value of p (see section 3.4). The probabilistically distorted database is mined with knowledge of p. Then, the support for an itemset or itemsets is estimated from the distorted database (see Section 4).

Contrarily, in the present invention, the original dataset is randomized (i.e., is randomly distorted, not probabilistically distorted). That is, unlike in Rizvi, in the present invention each individual item does not stay the same (or change) as a function of a known probability. Rather, true items are selected at random and dropped from each transaction in the original dataset. Then, false items are randomly inserted into each transaction in the original dataset. Support of

an association rule in the randomized dataset is determined. Then, support of that association rule in the original dataset is estimated and, particularly, estimated based on the support of the association rule in the randomized dataset.

Therefore, the Applicants submit that independent claims 1, 7, 13, and 19 are patentable over the cited prior art reference. Further, dependent claims 2-6, 8-12, 14-18 and 18-24 are similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

III.   Formal Matters and Conclusion

With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, Applicants submit that claims 1-24, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims and further to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to

discuss any other changes deemed necessary. Please charge any deficiencies and credit any

overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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